REMARKS

Amendments to the Claims

Claims 10-11, 19, and 21-35 are pending in the present application. No amendments to the claims have been presently made. No additional claims fee is believed to be due.

Remarks on Examiner's Response to Applicants' Previously Submitted Arguments

The Examiner states that comparative data provided by Applicants in the Declaration of Jennifer Mary Marsh submitted previously with the Amendment dated January 13, 2006 (hereinafter referred to as "the Marsh Declaration II" to avoid confusion with the Marsh Declaration filed with a previous Amendment dated June 14, 2005) is not commensurate in scope with Applicants' claims, and, thus, is insufficient to support a showing of unexpected results to overcome an obviousness rejection of the claims. More particularly, the Examiner asserts that the comparative data in the declaration compares EDDS with EDTA, however, Applicants' independent claims do not recite specifically the species of chelant used in the comparative data (*i.e.*, EDDS). Therefore, the Examiner concludes that the comparative data is not commensurate in scope with Applicants' claims. Applicants respectfully disagree with this conclusion and request the Examiner's reconsideration based on the following comments.

Although, objective evidence of nonobviousness "must be reasonably commensurate in scope with the claimed invention," MPEP 2144.08 (Rev. 3, August 2005 at 2100-159), *see also, e.g., In re Kulling*, 897 F.2d 1147, 1149, 14 USPQ2d 1056, 1058 (Fed. Cir. 1990), "Office personnel should not require the applicant to show unexpected results over the entire range of properties possessed by a chemical compound or composition" MPEP 2144.08 (Rev. 3, August 2005 at 2100-160), *see also, e.g., In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987).

Moreover, "evidence that the compound or composition possesses superior and unexpected properties in one of a spectrum of common properties can be sufficient to rebut a *prima facie* case of obviousness." *Id.* Specifically, "a showing of unexpected results for a single member of a claimed subgenus, or a narrow portion of a claimed range would be sufficient to rebut a prima facie case of obviousness if a skilled artisan 'could ascertain a trend in the exemplified data that would allow him to reasonably extend the

probative value thereof.'" MPEP 2144.08 (Rev. 3, August 2005 at 2100-160), *citing In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980).

As discussed in more detail below, the comparative data provided by Applicants in the Marsh Declaration II demonstrate that the compositions of the present invention, as currently claimed, possess superior and unexpected properties over compositions comparable to the exemplified compositions of Dias. Particularly, the tests in the Marsh Declaration II compare the hair damage results for compositions containing the chelant EDDS, which are representative of Applicants' claimed compositions, with compositions containing the chelant EDTA, which are representative of compositions exemplified in Dias. Applicants respectfully submit that the showing of unexpected results with respect to EDDS is commensurate in scope with Applicants' claims, as currently presented, and is sufficient to rebut a rebut a *prima facie* case of obviousness which may be made against Applicants' claims.

The chelant EDDS is a single member of the class of chelants which is claimed by Applicants as part of the claimed hair treatment compositions. As previously amended, and as presently presented, Applicants' claim 19 is directed to a composition which requires, *inter alia*, a chelant having a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20. Chelants such as EDDS have a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio of greater than about 3.20, whereas chelants such as EDTA have a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio of less than about 3.20 (specifically, EDTA has a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio of 1.60). Thus, Applicants' compositions, as currently claimed, include chelants such as EDDS, but exclude chelants such as EDTA.

Furthermore, Applicants submit that one of ordinary skill in the art could reasonably extend the probative value of the showing of unexpected results for EDDS to other chelants having a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20. First, it is believed that Applicants' compositions provide improved hair damage results because the selected chelants act to chelate environmental and intrinsic heavy metal ions which would otherwise react with the oxidizing agent to give harmful species, such as free

radicals, which damage the hair by oxidizing the disulfide bonds of hair. Second, as discussed in the specification of the present application at pages 12-15, chelants which have a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20 have a much stronger affinity for binding with transition metals, such as copper, than with alkaline earth metals, such as calcium. Thus, it is reasonable for one of ordinary skill in the art to extend the unexpected results of the comparative data for EDDS to other chelants which similarly bind to certain heavy metal ions.

The Marsh Declaration II demonstrates superior and unexpected results for compositions containing EDDS as compared to compositions containing EDTA. Additionally, Applicants claims recite a limitation which includes chelants such as EDDS but excludes chelants such as EDTA. Finally, it is reasonable for one of ordinary skill in the art to extend the probative value of the comparative data for EDDS to other chelants which have a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20. As a result, the showing of unexpected results with respect to EDDS is commensurate in scope with Applicants' claims, as currently presented, and is sufficient to rebut a rebut a *prima facie* case of obviousness which may be made against Applicants' claims.

Rejections Under 35 USC 103(a) Over US Patent No. 6,004,355 to Dias et al.

Claims 11, 19, and 21-35 are rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,004,355 to Dias et al. ("Dias"). The Examiner asserts that Dias teaches a hair coloring composition comprising an oxidizing agent and a sequestrant (chelant), wherein the composition has a pH of 10, wherein the composition is an aqueous solution, wherein the oxidizing agent comprises from 0.1% to 4% of aqueous hydrogen peroxide, wherein the chelant is present at an amount from 0.01% to 10%, and wherein the composition further comprises an oxidative dye precursor. The Examiner also asserts that Dias teaches a kit comprising an oxidizing agent and one or more coloring agents, as well as methods for coloring hair comprising steps such as those claimed by Applicants. The Examiner acknowledges that Applicants' claims differ from Dias by reciting that the chelant provides a Normalized Shine Ratio of at least about 0.95.

However, the Examiner asserts that, in view of Dias, it would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to formulate a composition which comprises hydrogen peroxide and chelants to arrive at Applicants' claimed invention. More particularly, the Examiner asserts that Dias teaches the ingredients of oxidizing agents and chelants such as glycinamide-N,N'-disuccinic acid (GADS) in the claimed amount, and, thus, one of ordinary skill in the art would expect such a composition to have similar properties to those claimed, absent unexpected results. Applicants respectfully traverse the present rejection based on the following comments.

Applicants' claimed invention is not obvious in view of Dias. Dias does not teach or suggest all of Applicants' claim limitations and, therefore, does not establish a *prima facie* case of obviousness. *See* MPEP 2143.03. Alternatively, Applicants' claims are not obvious in view of Dias because the Declaration of Jennifer Mary Marsh submitted previously with the Amendment dated January 13, 2006 (hereinafter referred to as "the Marsh Declaration II" to avoid confusion with the Marsh Declaration filed with a previous Amendment dated June 14, 2005) demonstrates *in a manner commensurate with the scope of the current claims* that the compositions of the present invention, as currently claimed, possess superior and unexpected properties over compositions comparable to the exemplified compositions of Dias.

First, Dias fails to teach or suggest each and every limitation of Applicants' claimed hair treatment compositions. As previously amended, Applicants' claim 19 recites a composition comprising (a) an oxidizing agent, and (b) a chelant *having a* $\frac{\log K_{CaL}}{\log K_{CaL}}$ *ratio calculated at pH 10 of at least about 3.20*, and wherein the *chelant is in an amount sufficient to provide a Normalized Shine Ratio of at least about 0.95* as measured by the Goniophotometer Damage Assessing Protocol after a 5-Cycle Hair Oxidative Treatment Protocol With 10 Intermediate Washes.

It is believed that Applicants' compositions, which contain the claimed types of chelants in an amount to provide the claimed shine ratio benefit, act to chelate environmental and intrinsic heavy metal ions which would otherwise react with the oxidizing agent to give harmful species, such as free radicals, which damage the hair by oxidizing the disulfide bonds of hair. Consequently, Applicants' compositions provide a good lightening effect to hair during oxidative treatments, such as bleaching and dyeing,

yet result in less damage to the hair than that which occurs during the use of known oxidative treatment compositions.

Dias discloses hair coloring compositions which comprise an oxidizing agent and which also optionally may contain a chelant. Dias broadly discloses a variety of chelants which are suitable for use in the compositions of Dias. Additionally, Dias teaches that chelants may be present in the compositions of Dias at a level from about 0.005% to about 20%, and most preferably from about 0.05% to about 2%. Notably, every composition exemplified in Dias, including Example A, contains the chelant EDTA at a level of 0.1%.

Dias, however, does not teach or suggest to select only those chelants claimed by Applicants (*i.e.*, defined as chelants having a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20) from among the variety of chelants generally disclosed in Dias. Further, Dias fails to teach or suggest that the level chelants present in the composition should be selected to provide a particular damage benefit as claimed by Applicants (*i.e.*, defined as an amount sufficient to provide a Normalized Shine Ratio of at least about 0.95).

In contrast to the disclosure of Dias, Applicants' claimed compositions require a chelant having a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20. While the calculation of this parameter is within the ability of one of ordinary skill in the art, a description of this parameter is provided at page 12, line 12 to page 15, line 13 of the specification. Further, a list of the calculated $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratios for several different chelants is provided at page 15 of the specification. Chelants such as EDDS and EDDHA have a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio of greater than about 3.20, whereas chelants such as EDTA have a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio of less than about 3.20 (specifically, EDTA has a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio of 1.60). Thus, Applicants' compositions, as currently claimed, include chelants such as EDDS and EDDHA, but exclude chelants such as EDTA.

Applicants' claimed compositions also require the chelant to be present in an amount sufficient to provide a Normalized Shine Ratio of at least about 0.95 as measured

by the Goniophotometer Damage Assessing Protocol after a 5-Cycle Hair Oxidative Treatment Protocol With 10 Intermediate Washes. This parameter and the associated test method is described at page 24, line 15 to page 25, line 23 of the specification. The Marsh Declaration II demonstrates that compositions comparable to the exemplified compositions of Dias, including Example A of Dias, do not teach or suggest including chelants in an amount to provide a Normalized Shine Ratio of at least about 0.95, as required by Applicants' claims.

In Table 1 of the Marsh Declaration II, it can be seen that Product 9, which comprises 0.1% EDTA, resulted in a Normalized Shine Ratio of 0.85. This value is less than the currently claimed Normalized Shine Ratio of at least about 0.95. Notably, even as the level of EDTA is increased, the resulting Normalized Shine Ratio does not increase. In contrast, Product 3, which comprises 0.1% EDDS, resulted in a Normalized Shine Ratio of 1.01. This value is greater than the claimed Normalized Shine Ratio of at least about 0.95. As the level of EDDS is varied, the resulting Normalized Shine Ratio remains above the claimed value of at least about 0.95. Therefore, the Normalized Shine Ratio required by Applicants' claims is not a physical property taught or suggested by the exemplified compositions of Dias which contain EDTA at a level of 0.1%.

As a result, Dias does not teach or suggest each and every limitation of Applicants' claim 19, as well as claims 21-27 and 29, which contain the limitations of claim 19. Therefore, Applicants' claims 19, 21-27, 29, and 31-35 are novel and unobvious over Dias.

Second, and alternatively, Applicants' claims are not obvious in view of Dias because the Marsh Declaration II demonstrates in a manner commensurate with the scope of Applicants' claims that the compositions of the present invention, as currently claimed, possess superior and unexpected properties over compositions comparable to the exemplified compositions of Dias. Specifically, the compositions of the present invention unexpectedly result in significantly less damage to hair that has been treated with the compositions.

As shown in Table I of the Marsh Declaration II, and as discussed above, the Normalized Shine Ratio, which is an indication of hair damage, is consistently better for compositions comprising EDDS at various levels than for compositions comprising EDTA at various levels. Importantly, as discussed above, *EDDS is representative of a*

class of chelants which are within the scope of Applicants' claims, whereas EDTA is outside of the scope of Applicants' claims, because Applicants' claims require chelants having a $\frac{\log K_{CuL}}{\log K_{CaL}}$ *ratio calculated at pH 10 of at least about 3.20.* Specifically, the $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio of EDDS is about 3.76, and the value of the same parameter for EDTA is about 1.60.

Referring again to Table 1, as the Normalized Shine Ratio is indexed against the Normalized Shine value of virgin hair, a Normalized Shine Ratio value of greater than 1.0 means that the tested hair has a higher Normalized Shine value (*i.e.*, appears less damaged) than virgin hair. Conversely, a Normalized Shine value of less than 1.0 means that the tested hair has a lower Normalized Shine value (i.e., appears more damaged) than virgin hair. For example, it can be seen that Product 3, which comprises 0.1% EDDS, resulted in a Normalized Shine Ratio of 1.01, whereas Product 9, which comprises 0.1% EDTA, resulted in a Normalized Shine Ratio of 0.85. Thus, the hair treated with Product 3 appears less damaged than virgin hair, and the hair treated with Product 9 appears more damaged than virgin hair. Applicants respectfully submit that these results are clearly superior and unexpected.

To further illustrate the superior and unexpected properties of the compositions of the present invention, Table 2 of the Marsh Declaration II provides the results of visual damage assessment with a scanning electron microscope of the treated hair. Notably, Product 3, which comprises 0.1% EDDS, resulted in a Damage Index of 8.4. In contrast, Product 9, which comprises 0.1% EDTA, resulted in a Damage Index of 63.6. Thus, the hair treated with Product 9 was significantly more damaged than hair treated with Product 3. Applicants respectfully submit that these results also are superior and unexpected.

Accordingly, the Marsh Declaration II demonstrates that the compositions of the present invention, as currently claimed, possess superior and unexpected properties over the compositions comparable to the exemplified compositions of Dias. These demonstrated results are commensurate in scope with Applicants' claims, which require chelants having a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20, because EDDS is representative of chelants having a value of such a parameter of greater than

3.20, and EDTA is representative of chelants having a value of such a parameter of less than 3.20.

Therefore, Applicants' claims 11, 19, and 21-35 are novel and unobvious over Dias.

Rejections Under 35 USC 103(a) Over US Patent No. 6,004,355 to Dias et al. in view of US Patent No. 5,100,436 to Wenke

Claim 10 is rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,004,355 to Dias et al. ("Dias") in view of US Patent No. 5,100,436 to Wenke ("Wenke"). The Examiner asserts that Dias teaches hair coloring compositions, as described above, wherein the compositions are thickened aqueous compositions. The Examiner acknowledges that Dias does not teach a hair treatment composition in the form of an oil-in-water emulsion. Then, the Examiner asserts that Wenke teaches a composition comprising oxidative dye precursors, oxidizing agents, and chelating agents, wherein the composition may be in the form of an emulsion, suspension, lotion, or gel. Thus, the Examiner concludes that it would have been obvious to one of skill in the art to formulate the composition of Dias in an emulsion because Wenke teaches different forms of hair dyeing compositions, absent unexpected results. Applicants respectfully traverse the present rejection based on the following comments.

The combination of Dias and Wenke does not teach or suggest all of Applicants' claim limitations and, therefore, does not establish a *prima facie* case of obviousness. *See* MPEP 2143.03. Applicants' claim 10 contains the limitations of currently amended claim 19. As discussed above, Applicants' claim 19, as previously amended, recites a composition comprising (a) an oxidizing agent, and (b) a chelant *having a* $\frac{\log K_{CuL}}{\log K_{CaL}}$ *ratio* calculated at pH 10 of *at least about 3.20*, and wherein the *chelant is in an amount sufficient to provide a Normalized Shine Ratio of at least about 0.95* as claimed.

Although Wenke discloses that its compositions may be in the form of an emulsion, neither Dias nor Wenke teach or suggest the selection of chelants having the particular physical properties of the chelants of Applicants' claims.

Therefore, the combination of Dias and Wenke fails to establish a *prima facie* case of obviousness with respect to Applicants' currently amended claim 19, as well as

Applicants' claim 10. As a result, Applicants' claim 10 is novel and nonobvious over Dias in view of Wenke.

Alternatively, Applicants' claim 10 is not obvious over Dias in view of Wenke because, as discussed above, the Marsh Declaration II demonstrates that the compositions of the present invention possess superior and unexpected properties over the compositions of Dias. Although Wenke discloses that its hair coloring compositions may be in the form of emulsions, suspensions, lotions, or gels, Wenke fails to provide a teaching or suggestion for achieving the superior results of Applicants' claimed compositions.

Therefore, Applicants' claim 10 is novel and nonobvious over the combination of Dias and Wenke.

CONCLUSION

In light of the remarks presented herein, it is requested that the Examiner reconsider and withdraw the present rejections. Early and favorable action in the case is respectfully requested.

Applicant has made an earnest effort to place their application in proper form and to distinguish the invention as now claimed from the applied references. In view of the foregoing, Applicant respectfully requests reconsideration of this application and allowance of Claims 10-11, 19, and 21-35.

Respectfully submitted,
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